PB85-213841

Superfund Record of Decision (EPA Region 3)
Matthews Electroplating Site, Virginia
June 1983

(U.S.) Environmental Protection Agency
Washington, DC

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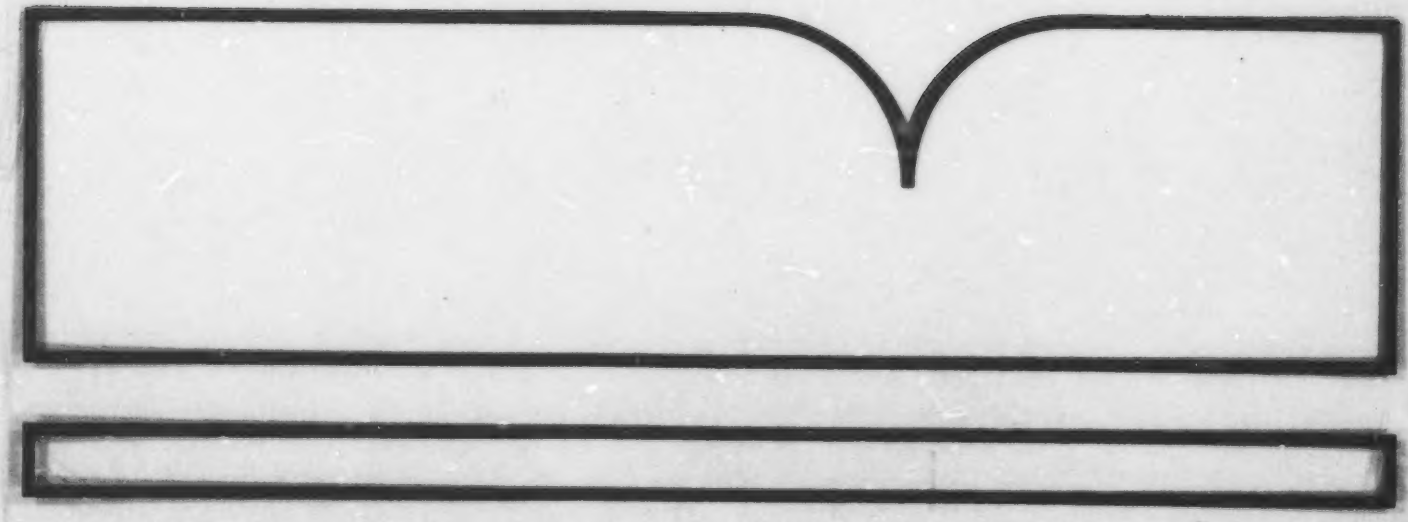

U.S. Department of Commerce
National Technical Information Service

United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R03-83/007
June 1983

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EPA

Superfund Record of Decision:

Matthews Electroplating Site, VA

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TECHNICAL REPORT DATA
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4. TITLE AND SUBTITLE	5. REPORT DATE
SUPERFUND RECORD OF DECISION: Matthews Electroplating Site, VA	06/02/83 6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Same as box 12.	10. PROGRAM ELEMENT NO. 11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS U. S. Environmental Protection Agency 401 "M" Street, S. W. Washington, D. C. 20460	13. TYPE OF REPORT AND PERIOD COVERED Final ROD Report 14. SPONSORING AGENCY CODE 800/00

15. SUPPLEMENTARY NOTES

16. ABSTRACT

The 1.7 acre Matthews Electroplating site is located in Roanoke County, Virginia, approximately two miles west of Salem. Between 1972 and 1976, two buildings on the site housed an automobile bumper electroplating operation. Groundwater sampling has confirmed that a well at the plant was heavily contaminated with hexavalent chromium. The off-site ground water investigation revealed that 10 local residential wells also had chromium contamination.

The cost-effective remedy selected for this site is to provide municipal water service to the affected neighborhood. The capital cost of this alternative is estimated to be $662,000 and the present worth of operating and maintenance costs for thirty years was estimated at $292,000.

Key Words: Chromium, Drinking Water Standard, Municipal Water Supply, Shared Cost, Capping, Ground Water Contamination, Source Control

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision Site Name: Matthews Electroplating Site, VA Contaminated media: gw, soil Key contaminants: hexavalent chromium, chromium		

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ROD ISSUES ABSTRACT

Site: Matthews Electroplating, Virginia

Region: III

AA, OSWER
Briefing Date: June 2, 1983

SITE DESCRIPTION

The 1.7 acre Matthews Electroplating site is located in Roanoke County, Virginia, approximately two miles west of Salem. Between 1972 and 1976, two buildings on the site housed an automobile bumper electroplating operation. Groundwater sampling has confirmed that a well at the plant was heavily contaminated with hexavalent chromium. The off-site ground water investigation revealed that 10 local residential wells also had chromium contamination.

SELECTED ALTERNATIVE

The cost-effective remedy selected for this site is to provide municipal water service to the affected neighborhood. The capital cost of this alternative is estimated to be $662,000 and the present worth of operating and maintenance costs for thirty years was estimated at $292,000.

ISSUES AND RESOLUTIONS

1. The EPA agreed to extend an existing water supply system to users of private wells with chromium contamination above the drinking water standard of 50 ug/l. However, the county has requested modifications to the proposed design of the extended water distribution system. Their requests include a larger water pipe size and additional facilities to accomodate future growth. It was decided that EPA would pay for the dis-distribution system as originally proposed and that any modifications to the proposed design would be funded by the county.

KEY WORDS

- Chromium
- Drinking Water
- Standard
- Municipal Water Supply
- Shared Cost

ISSUES AND RESOLUTIONS

2. Capping of the entire site, to prevent further leaching of hexavalent chromium into the ground water, was proposed as an additional remedial action. The site investigation showed that there is only moderate soil contamination in two areas and the chromium in these areas is bound up in an unleachable form. Capping of the site is unnecessary since the contaminated areas no longer contribute any significant amount of contaminants to the ground water.

KEY WORDS

- Capping
- Chromium
- Ground Water Contamination
- Source Control

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RECORD OF DECISION
REMEDIAL ALTERNATIVE SELECTION

Site: Matthews Electroplating, Roanoke County, Virginia

Documents Reviewed

I have reviewed the following documents describing the analysis of cost-effectiveness of remedial alternatives for the Matthews Electroplating Site:

-Study titled, "Field Investigation Report, Matthews Electroplating Site, Salem, Virginia," October 29, 1982.

-Study titled, "Report on Supplemental Field Investigations, Matthews Electroplating Site, Salem, Virginia," January 18, 1983.

-Study Titled "Feasibility Study Report, Matthews Electroplating Site, Salem Virginia," January 18, 1983.

-Staff summaries and recommendations

-Recommendations by the Virginia Department of Health and the Virginia State Water Control Board.

Declarations

Consistent with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, and the National Oil and Hazardous Substances Contingency Plan, I have determined that providing municipal water service to the neighborhood near the old electroplating plant is an appropriate level of response to the contamination problems at this site. This action is a cost-effective remedy, and it effectively and reliably mitigates and minimizes damage to, and provides adequate protection of the public health, welfare and the environment.

Lee M. Thomas
Acting Assistant Administrator
Office of Solid Waste and
Emergency Response

Remedial Implementation Alternative Selection
Matthews Electroplating Site
Roanoke County, Virginia

Record of Decision Summary Sheet

EPA has completed the following remedial Superfund activities at the Matthews Electroplating Site, located near Salem, Virginia:

Activity	Date Completed
1. Remedial Investigation	October 29, 1982
2. Feasibility Study	January 18, 1983
3. Public meetings	April 12, 1982 and December 16, 1982

Region III has reviewed the information in each report and has given careful consideration to the comments received during the public comment period. Based on our review, EPA Region III has determined that the following action at the site is cost-effective and effectively mitigates and minimizes damage to, and provides adquate protection of the public health, welfare, and the environment:

Action	Estimated Cost
Extension of Municipal Water Supply	$662,000

APR 15 1983
Date

Peter N. Bibko
Regional Admistrator

Narrative Summary
Matthews Electroplating Site

History

The 1.7 acre Matthews Electroplating site is located in Roanoke County, Virginia, approximately two miles west of Salem. Between 1972 and 1976, two buildings on the site housed an automobile bumper electroplating operation. The bumpers were straightened and prepared for plating in one building, and then plated with chromium and nickel in the electroplating shop.

The Virginia State Water Control Board (SWCB) began receiving complaints about the operation of the plant in 1975. Groundwater sampling in November of 1975 confirmed that a well at the plant was heavily contaminated with hexavalent chromium, and that the well of a nearby church was also contaminated. The SWCB issued an emergency order prohibiting the discharge of water from the plant in January 1976, but the facility went out of business shortly thereafter. The local residents with contaminated wells still do not have a reliable source of safe drinking water.

This site was referred to EPA as a potential Superfund candidate by the SWCB in 1981. The site was ranked with the Hazard Ranking System (score: 31.86), and it was included on the Interim Priority List as Virginia's State Priority Site. Funding for the Site Investigation and Feasibility Study was approved in October 1981. Weston started the Site Investigation on April 13, 1982, and completed the Feasibility Study on January 18, 1983.

Current Status

The site investigation was aimed primarily at determining the level of soil and groundwater contamination on the site, and at measuring the extent of groundwater contamination in the surrounding area. The study showed that the on-site well contained 41 ug/l of total chromium, just below the drinking water standard of 50 ug/l. Two areas of moderate soil contamination were identified, but it was determined that the chromium in these areas was bound up in the soil. It was concluded that these areas no longer contributed any significant amounts of contaminants to the groundwater.

The off-site groundwater investigation revealed that 10 local residential wells had been effected by the chromium contamination. Three residential wells were above the drinking water standard for chromium, and seven other wells had detectable levels that were below the standard. The contamination extended approximately one half mile to the southwest of the old plant site, apparently following a fracture trace in the limestone bedrock. Although the groundwater in the area generally flows to the southwest, the study also found some chromium in a well to the north of the site. This finding suggests that the local groundwater flow may be changing, since some local residents have stopped using their contaminated wells. If the chromuim contamination moves to the north, a community well for the Broadview Subdivision would be threatened.

Based on the results of the Remedial Investigation, the Feasibility Study identified seven preliminary remedial action alternatives:

1. No Action

2. Surface Management

   - Site grading
   - Place cover soil
   - Revegetation

3. Infiltration Controls

   - Replace/upgrade clay cap
   - Site grading
   - Place cover soil
   - Revegetation

4. Point-of use Treatment of Groundwater

5. Centralized Treatment of Groundwater

   - Extend distribution of existing community well system

   - Develop new community system

6. Provide Alternative Drinking Water Supply

   - Bottled water
   - Extend municipal water supply

7. Contaminated Soil Removal

These preliminary alternatives were then evaluated on the basis of their technical feasibility, cost and environmental effectiveness. The final remedial action alternatives that were examined in depth in the Feasibility Study included the following:

Alternative	Estimated Capital Cost	Estimated O&M Cost	Total Cost (Present Worth)
1. No On-site Action	0	$19,800	$19,800
2. Surface Management	$78,000	$9,900	$87,900
3. Site Capping	$121,000	$9,900	$131,000
4. Contaminated Soil Removal	$1,236,000	$5,000	$1,241,000
5. No Off-site Action	0	$40,800	$40,800
6. Community Well System	$573,000	$350,000	$923,000
7. Extension of Municipal Water Supply	$662,000	$292,000	$954,000

Based on the results of a human health assessment, it was determined that the "No Action" option results in excess health risk. The "No Action" alternative is therefore considered to be unacceptable. Since contamination from past operations on the site has already entered the groundwater, it was determined that the on-site remedial options (Surface Management, Site Capping and Contaminated Soil Removal) would not result in any significant improvement in groundwater quality. The Community Well System Alternative was also rejected because it did not provide the kind of flexible and reliable water supply system that is necessary in this situation.

Public Input

Two public meetings were held near the site during the study period. The meeting to discuss the alternatives was held on December 16, 1982, at the Roanoke County Administration Building. Approximately 20 residents attended this meeting, and nine written comments were received following the meeting. The local residents clearly supported the construction of a new water supply system, and Roanoke County officials endorsed the extension of the municipal water lines from the Salem water treatment plant.

Recommended Alternative

Section 300.68(j) of the National Contingency Plan (NCP) [47 FR 31180, July 16, 1982] states that the appropriate extent of remedy shall be determined by the lead agency's selection of the remedial alternative which the agency determines is cost-effective (i.e., the lowest cost alternative that is technologically feasible and reliable) and which effectively mitigates and minimizes damage to and provides adequate protection of public health, welfare, or the environment. Based on our evaluation of the cost-effectiveness of each of the proposed alternatives, the comments received from the public, information from the Site Investigation and Feasibility Study Reports, and information from the State, we recommend Alternative 7, above. The alternative includes the extension of the municipal water system from the water treatment plant in the City of Salem. We have determined that implementation of this alternative will effectively mitigate damage to and provide adequate protection of public health, welfare, and the environment.

The capital cost of this alternative is estimated to be $662,000, and the present worth of operating and maintenance costs are estimated at $292,000 for thirty years.

State Input

After giving careful consideration to the cost effectiveness of each alternative, and evaluating the public comments we received, the Virginia State Water Control Board and the Virginia Department of Health (the two agencies that share Superfund responsibilities in Virginia) recommended that we implement Alternative 7 (extension of municipal water supply). Letters supporting the State's recommendation appear on Attachment A.

Proposed Action

We request your approval of Alternative 7 for remedial action at the Matthews Electroplating site. In addition, we request an allocation of $662,000 for construction of the project, and $30,000 for the preparation of plans and specification (for a total allocation of $692,000).

Tentative Schedule

Final Design	June 1983
Initiate Construction	August 1983
Finish Construction	April 1984

If you have any questions, please call Eric Johnson at (FTS) 597-0496.

Attachments

ATTACHMENT A

Letters from Commonwealth of Virginia; Funding Resolution,

Roanoke County Board of Supervisors

COMMONWEALTH of VIRGINIA

STATE WATER CONTROL BOARD
2111 Hamilton Street

R. V. Davis, P.E.
Executive Director

Post Office Box 11143
Richmond, Virginia 23230
(804) 257-0056

FEB 14 1983

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David H. Miller
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Mr. Stephen R. Wassersug
U. S. Environmental Protection Agency
Region III
6th and Walnut Streets
Philadelphia, Pennsylvania 19106

Dear Mr. Wassersug:

For the last year, the Water Control Board staff, Mr. Eric Johnson, and the Roy F. Weston consultants have been cooperating in the preparation and development of the site investigation and feasibility study for the Matthews Electroplating Superfund site near Salem, Virginia. These preliminary efforts have been completed and the final "Feasibility Study Report" was published last month.

As a result of the completed investigations, public participation and our assessment of the chromium contamination problem at the site, the State Water Control Board staff is hereby recommending that Alternative No. 7, "Extension of the Municipal Water Supply," be accepted as the remedial action for this site. This alternative has clearly been the preferred choice of all concerned parties, and we certainly believe that it is the best resolution to the chromium contamination problem.

My staff truly appreciates the cooperative efforts and progress that have been accomplished to date, and we look forward to your continued assistance as we strive to obtain a resolution to the contamination at the Matthews site.

Sincerely yours,

R. V. Davis, P.E.
Executive Director

/plh

cc: C. W. Maus - WCRO/SWCB
W. F. Gilley - SHD

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AIR [illegible]

EPA [illegible]

COMMONWEALTH of VIRGINIA

Department of Health
Richmond, Va. 23219

February 18, 1983

Stephen R. Wassersug, Director
Air & Waste Management Division
USEPA, Region III
Curtis Building
6th and Walnut Streets
Philadelphia, PA 19106

Dear Mr. Wassersug:

The final "Feasibility Study Report" undertaken by the Roy F. Weston consultants on the Mathews Electroplating superfund site near Salem, Virginia has been reveiwed.

Considering the investigation findings, the public response and our evaluation, the Alternative No. 7, Extension of the municipal water supply is the recommended remedial action for the site. It clearly provided the most effective means of assuring adequate protection of public health for area residents now relying on chromium contaminated groundwater for drinking water.

We will continue to work with you, Mr. Eric Johnson and others in seeking an early resolution to this contamination site.

Sincerely,

William F. Gilley

William F. Gilley, P.E., Director
Division of Solid &
Hazardous Waste Management

WFG/sm

cc: R. V. Davis

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COMMONWEALTH of VIRGINIA

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April 1, 1983

Mr. Eric Johnson
U. S. Environmental Protection Agency
Region III
6th and Walnut Streets
Philadelphia, Pennsylvania 19106

Dear Mr. Johnson:

The intent of this letter is to provide you with an update of our activities in proceeding with the resolution to the pollution and drinking water problems at Matthews Electroplating site in Roanoke County. We realize that we are very close to the initiation of remedial measures that will relieve the drinking water problems that the area currently experiences, and we want to assure you that our agencies are striving to expedite this process.

We have reached a stage where the mechanism for the State share of the remedial construction costs must be developed. As you are aware, Roanoke County has recently made a commitment to provide the ten (10) percent funding to the State, and we are currently searching for an appropriate mechanism, within the State, to accept this money and then transmit it to the Federal Fund as specified by regulations. A meeting has been scheduled on April 7, 1983 to hopefully mediate the minor problems that have been raised concerning the manipulation of these funds through State accounts, and we hope that once these problems are solved then we will be ready to enter into a contractual agreement and proceed with remedial clean-up.

Thank you for your understanding of these issues and for your continued support.

Sincerely yours,

R. E. Bowles

R. E. Bowles, Director
Bureau of Surveillance
and Field Studies

William F. Gilley

William F. Gilley, Director
Division of Solid and Hazardous
Waste, State Health Department

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